

**FAA LONG-RANGE
AVIATION FORECASTS
FISCAL YEARS
2010, 2015 AND 2020**

**OFFICE OF
AVIATION POLICY AND PLANS**

JUNE 1998

FAA LONG-RANGE AVIATION FORECASTS FISCAL YEARS 2010, 2015 AND 2020

I. SUMMARY

To assure consistency in agency planning, the Office of Aviation Policy and Plans provides an extension of its annual 12-year forecasts of aviation demand. Although forecast values are shown for specific years, it must be recognized that year-to-year fluctuations are difficult to forecast precisely. Therefore, the projections reflect the trend of average conditions expected during the forecast period.

The Federal Aviation Administration (FAA) issues its annual 12-year forecast in the spring of each year which is utilized for both manpower and facility planning as well as policy analysis. The latest 12-year forecast (FAA-APO-98-1, FAA Aviation Forecasts: Fiscal Years 1998-2009, March 1998) provides projections of aviation activity and FAA workload measures through the year 2009. Periodically, a need arises for projections of aviation demand and activity beyond the published horizon. This document was developed to meet these needs, and contains projections for aircraft fleet and hours, air carrier and regional/commuter passenger enplanements, pilots, and FAA workload measures for the years 2010, 2015 and 2020.

The fundamental assumptions used in developing these extended forecasts are:

- o slower economic growth;
- o moderate increases in inflation and fuel prices; and
- o generally lower long-term interest rates.

These assumptions translate into slower growth of aviation activity and FAA workload measures during the extended 11-year period (2009 to 2020) than was forecast for the immediate 12-year period (1997 to 2009).

	<u>AVERAGE ANNUAL PERCENT CHANGES</u>	
	<u>1997 - 2009</u>	<u>2009 - 2020</u>
<u>AVIATION ACTIVITY</u>		
PASSENGER ENPLANEMENTS		
AIR CARRIER	3.5	2.9
REGIONALS/COMMUTERS	5.5	3.6
AIRCRAFT FLEET		
AIR CARRIER	3.4	2.5
REGIONAL/COMMUTER	2.9	1.9
GENERAL AVIATION	1.0	0.9
HOURS FLOWN		
AIR CARRIER	3.5	2.6
REGIONAL/COMMUTER	4.9	3.1
GENERAL AVIATION	1.4	1.1
PILOTS		
TOTAL	2.1	0.9
INSTRUMENT RATED	1.4	0.9
<u>FAA WORKLOAD MEASURES</u>		
TOWER OPERATIONS*	1.5	1.3
INSTRUMENT OPERATIONS*	1.7	1.5
IFR AIRCRAFT HANDLED	1.9	1.7
FLIGHT SERVICE STATIONS	(0.4)	(0.2)

* Includes combined activity at FAA and contract towers

II. LONG-RANGE FORECAST ASSUMPTIONS

The long-range aviation forecasts are based on assumptions concerning the future of the commercial and general aviation industries and on the latest macroeconomic projections. For the purposes of this report, the forecast period refers to the long-range outlook, particularly the 2009 to 2020 period. Much of the discussion assumes some familiarity with the forecasts contained in FAA Aviation Forecasts: Fiscal Years 1998-2009, dated March 1998. Copies of this report can be obtained from the FAA Statistics and Forecast Branch, APO-110, by calling (202) 267-3355. The Executive Summary and 45 forecast tables can be found on the Internet at http://api.hq.faa.gov/apo_home.htm.

A. Economic Assumptions

The long-range economic forecasts are based on an average of the economic projections developed by DRI/McGraw-Hill (DRI) and The WEFA Group (WEFA) for the years in which the two forecasts overlap. The DRI economic projections extend through the year 2022 and the WEFA economic forecasts extend through the year 2016. Both sets of economic forecasts were developed utilizing trend projections and assume that the economy experiences stable growth throughout the entire forecast period. Essentially, these projections represent the average of the possible paths that the U.S. economy could follow. Using trend projections assumes that (1) no major shocks will occur (such as a rapid run-up in oil prices), (2) economic policies remain stable, and (3) national and international markets do not experience dramatic shifts in either the supply or demand for economic goods and services. These long-term economic projections represent appropriate points from which to evaluate the effects of variations about the mean of expected values of various activity measures, transportation services, or FAA workload measures.

The most significant development in 1998, which will have an important impact on the long-run economic outlook, is a federal budget surplus for the first time since 1969. This major development is 5 years ahead of the expected time table worked out in the balanced budget program agreed to by the President and Congress.

Both DRI and WEFA have taken this turnaround into account in their latest long-range economic outlooks. The major difference between the two forecasting services is how long they expect it will be before the U.S. budget returns to a deficit spending position (2003 for WEFA and 2011 for DRI). However, the projected budget deficits are not expected to return to the magnitude of those of the 1980s and early 1990s. To the extent that the Treasury uses a portion of the current and expected budget surpluses to pay down the outstanding national debt, it will further reduce each succeeding year's debt and interest payments. This, together with the expected reduction in military spending and reduced growth in entitlement expenditures will contribute to a continuing decline in government spending as a percent of GDP, and result in a more positive environment for sustained economic growth.

Real Gross Domestic Product

Currently, the U.S. economy is expected to grow at a moderate rate during the 23-year forecast period. Growth in real gross domestic product (GDP), adjusted for price changes and expressed in 1992 dollars, is projected to average 1.9 percent annually over the extended 11-year forecast period. This is considerably slower than both the historical past (3.0 percent between 1960 and 1997) and slightly lower than the economic projections for the immediate 12-year forecast period (2.3 percent between 1997 and 2009). During the entire 23-year period between 1997 and 2020, real GDP is expected to increase at an average annual rate of 2.1 percent.

Consumer Price Index

Inflation is not expected to return to the very high rates experienced during the latter half of the 1970's and early 1980's (8.7 percent annual growth between 1972 and 1982) during the entire 23-year forecast period. The opinion of the major economic forecasting services is that there will be little upward pressure from real wage rates and commodity prices, and that the Federal Reserve is committed to controlling inflation while providing for sufficient growth in the money supply to ensure growth in output. The consumer price index is projected to increase at an average annual rate of 2.4 percent a year during the 23-year time period--2.3 percent during the immediate 12-year period (to 2009) and 2.5 percent during the extended forecast period (to 2020).

Fuel Prices

Fuel prices, as measured by the Oil and Gas Deflator, are forecast to increase at an annual rate of 2.4 percent over the 23-year forecast period--comparable to expected overall inflation rate. Between 1997 and 2009, nominal fuel prices are projected to increase at an annual rate of only 2.2 percent (down 0.1 percent annually in real terms). Between 2009 and 2020, nominal fuel prices are projected to increase at an annual rate of 2.6 percent (in real terms up 0.1 percent annually).

Interest Rates

Long-term nominal interest rates are tied to inflationary expectations. The Federal Reserve is expected to pursue a monetary policy that keeps inflation in check and allows for sufficient monetary aggregate growth to sustain economic output gains. With budget deficit pressures apparently under control, and with the positive long-term outlook for the rate of inflation, long-term rates are expected to remain relatively stable over the immediate 12-year forecast period before rising slightly through 2020. Interest rates are expected to decrease from 6.6 percent in 1997 to 5.7 percent in 2009. During the extended forecast period, interest rates increase modestly, but remain slightly below the 1997 level (averaging 6.4 percent in 2020).

B. Operational Variables

The long-range forecasts of various operational variables discussed below are, for the most part, a continuation of the trends discussed in greater detail in FAA Aviation Forecasts: Fiscal Years 1998-2009. As with the economic projections, these forecasts reflect an average trend of the possible paths that the various operational variables could follow. They assume that (1) no major shocks will occur (such as a rapid run-up in oil prices), (2) economic policies remain stable, and (3) no dramatic shifts in either the supply or demand for aviation services. These long-term projections represent appropriate points from which to evaluate the effects of variations about the expected values of various activity measures, transportation demand and services, or FAA workload measures.

Air Carrier Domestic Passenger Yield

The current 12-year and extended 11-year forecasts assume that real domestic passenger yields (expressed as revenue per passenger mile) will continue the historical long-term gradual downward trend. Real domestic passenger yields are projected to decline by 0.9 percent annually over the 23-year period. The downward trend in real domestic yields is based on the assumptions of continued strong competition in the industry, and continued improvements in efficiency and productivity.

Average Aircraft Size

Federal noise legislation requires all stage-2 aircraft to be phased out of the U.S. fleet by January 1, 2000. This legislation is expected to result in the retirement and/or retrofitting of significant numbers of these smaller seating capacity stage-2 aircraft over the immediate 12-year forecast period, their replacements generally being larger stage-3 aircraft. Replacements plus additions to the fleet with larger aircraft results in an increase in the average seating capacity of air carrier aircraft in domestic service of just under 2 seats annually for the period between 1997 and 2009 (from 142.6 to 166.6 seats).

The increase in average seating capacity is expected to slow over the extended 11-year forecast period. By the year 2000 (following the retirement of large numbers of the older stage-2 aircraft), the average age of the U.S. fleet will have been lowered significantly. This means that fewer aircraft will be retired. In addition, those aircraft being added to the fleet are expected to be similar in size to the aircraft in place after 2000. Therefore, we expect the average seating capacity of the domestic air carrier fleet to increase by just over 1 seat annually over the extended forecast period, reaching 177 seats in 2020.

The average seating capacity of regional/commuter aircraft is forecast to increase by just under 0.8 seats annually between 1997 and 2009 (from 31.2 to 40.3 seats). This trend is expected to continue over the extended forecast period, with the average seating capacity of regional/commuter aircraft averaging approximately 46.5 seats in the year 2020. This reflects the continued introduction of larger high speed turboprop and regional jet aircraft into the regional/commuter fleet. The extended range and greater speed offered by these aircraft are expected to expand the market potential for the regional industry, and continue to blur the distinction between regional/commuters and the large commercial operators.

Load Factor

Domestic air carrier load factors are forecast to increase from 68.9 percent in 1997 to 70.0 percent in 2000, decline to 69.0 percent in 2002, and remain at this level throughout the remainder of the immediate and extended forecast period. During the past several years, airline scheduling policies have allowed air carriers to rapidly adjust capacity levels to more closely correspond to changes in passenger demand. This ability to make rapid adjustments to meet changing demand conditions has enabled the airlines to push up load factors to all-time highs. Beyond 2000, it is expected that present fleet plans will provide capacity levels that should reduce the air carrier load factor to 69.0 percent by 2000, and keep it at this level for the remainder of the forecast period.

Regional/commuter load factors are projected to increase from 53.1 percent in 1997 to 58.2 percent in 2009. During the extended forecast period, regional/commuter load factors are expected to continue to increase slightly, rising to approximately 62.1 percent by 2020. The higher load factors result from the continued introduction of larger high speed turboprop and regional jet aircraft and the need to cover the higher cost per seat mile associated with these aircraft.

III. LONG-RANGE AVIATION ACTIVITY FORECASTS

Forecasts of various measures of aviation activity for 1998 and 5-year increments between 2000 and 2020 are provided in Table 1, page 11. A discussion of some of these measures of aviation activity follows in the paragraphs below.

A. Passenger Enplanements

Air Carrier

Air carrier demand, as measured by domestic passenger enplanements, is projected to continue to grow faster than the general economy. For the period 1998 to 2009, domestic passenger enplanements are forecast to increase at an average annual rate of 3.5 percent compared to a 2.3 percent annual growth rate in real GDP. Over the extended forecast period (2010-2020), domestic passenger enplanements are projected to increase at an average annual rate of 2.9 percent compared to real GDP growth of 1.9 percent annually.

Regionals/Commuters

The regional/commuter industry is projected to continue to grow at a relatively faster pace than the large air carriers through both the immediate and extended forecast periods. While a large part of the growth during the early years of the immediate forecast period will result from a continuation of the shift of low-density, short-haul markets from the larger air carriers to their commuter code-share partners, most of the growth the 23-year forecast period will result from markets created by the expanded use of regional jet aircraft.

The introduction and popularity of regional jets is expected to open up new growth opportunities in thin, long-haul markets which cannot be served economically with large jet aircraft. The speed and range of the regional jet also offers the opportunity for more point-to-point (hub bypass) operations in markets which are currently served only via connecting flights through a large hub. Seven regional/commuter operators currently operate jet aircraft, and up to five more will be operating jets by the end of 1997. This, together with the public preference for jet aircraft, should ensure that the regional/commuter industry will continue to grow more rapidly than the large air carriers.

During the forecast period 1998 to 2009, regional/commuter passenger enplanements are forecast to increase at a yearly rate of 5.5 percent. This rate of growth is expected to slow to 3.6 percent during the extended forecast period.

B. Aircraft Fleets and Hours Flown

Commercial Air Carriers

The commercial air carrier jet fleet (more than 60 seats) is forecast to increase at an annual rate of 3.4 percent or 206 aircraft annually between 1997 and 2009. By far the largest increase, in terms of number of aircraft, is projected to occur in the two-engine narrowbody aircraft category, which is expected to grow by an average of 178 aircraft (4.6 percent) annually. By 2009, two-engine narrowbody aircraft are expected to total 5,124 units and to account for 69 percent of the fleet.

During the extended forecast period, passenger demand is expected to grow at a slower rate. This will result in a slowing in the expansion of the air carrier fleet. Between 2009 and 2020, the air carrier fleet is forecast to increase at an average annual rate of 2.5 percent.

The number of hours flown by the larger commercial air carriers is forecast to increase by 3.5 percent annually between 1997 and 2009, and by 2.6 percent annually between 2009 and 2020. The immediate and extended range fleet forecasts imply that U.S. air carriers will use larger aircraft and continued high load factors to accommodate increasing passenger demand. The forecasts of hours flown imply that the average utilization of the U.S. fleet will increase gradually over the 23-year forecast period.

The regional/commuter fleet (60 seats or less) is expected to grow from its current 2,121 aircraft in 1997 to 3,700 by the year 2020. This is an average annual growth rate of 2.4 percent over the 23-year forecast period, or approximately 70 aircraft annually. By comparison, regional/commuter flight hours are forecast to increase at an average annual rate of 4.0 percent during the same time period (from 3.7 million hours in 1997 to 9.1 million in 2020).

General Aviation Aircraft

In 1997, general aviation completed its third year of operation following the enactment of the General Aviation Revitalization Act of 1994. While 1995 represented the beginning of a period renewed of optimism for the general aviation industry, 1996 was the year in which the industry converted this optimism into constructive actions designed to stimulate the development and production of new general aviation products and services. In 1997 the industry actually began to see the results of their actions. While the results of 1997 were mixed, they were, for the most part, positive. It appears that the industry has laid a firm foundation for growth throughout the extended forecast period.

The active general aviation fleet is expected to total 212,960 aircraft in 2009 and to expand to 234,000 by 2020. This represents an average annual growth of 1.0 percent during the immediate forecast period and 0.9 percent over the extended forecast period. The piston engine portion of the general aviation fleet is forecast to increase at 0.9 percent during both the

immediate and extended forecast periods. Turbine powered general aviation aircraft are expected to grow at a somewhat faster rate than the piston powered aircraft, increasing 2.2 percent annually between 1997 and 2009, and by 1.9 percent during the 2010 to 2020 period. The higher growth rate for the turbine portion of the fleet is based on the expectations of a greater business use of general aviation aircraft in an expanding U.S. economy.

Growth in general aviation flight hours is forecast to increase more rapidly than the growth in the active fleet. The higher growth in flight hours is based on the assumption that aircraft utilization rates will also increase over the forecast period. Over the last several years, general aviation aircraft utilization rates have been well below those experienced at the beginning of the decade. This was due primarily to the aging of the fleet, and the economic recession of the early 1990's.

General aviation activity is very sensitive to changes in fuel price and variations in the rate of economic growth. Based on the assumptions of sustained economic growth, relative stability in fuel prices, and the resumption of production of single-engine piston aircraft, it is expected that aircraft utilization rates will return to the higher levels experienced prior to the 1990-1991 economic recession. General aviation flight hours are forecast to increase from 26.5 million in 1997 to 31.4 million in 2009, and to 35.6 million in 2020 (1.4 and 1.1 percent annual growth, respectively).

These forecasts for the active general aviation fleet and flight hours rely not only on the assumptions of sustained economic growth and price stability, but also are heavily dependent on continued plant expansion and production by general aviation manufacturers and the success of industry programs, such as "GA Team 2000," to foster the growth in number of student pilots. If the general aviation industry falters in its efforts to stimulate the production of new general aviation products and services, the outlook for the active fleet, hours flown, and general aviation activity at FAA air traffic facilities could be considerably lower than the current projections.

C. Number of Pilots

The total pilot population is forecast to increase from 616,300 in 1997 to 872,300 by the year 2020, an average annual growth rate of 1.5 percent over the 23-year forecast period. Much of the growth results from the continuing demand for airline transport pilots. Additionally, recent General Aviation Coalition program initiatives designed to promote the benefits of general aviation flying to businesses and the public, to stimulate growth in the number of new pilots, and to develop an improved flight training infrastructure are also expected to contribute to the growth in the pilot population. During this same time period, the number of instrument rated pilots is expected to increase from 297,400 to 388,700. The percentage of instrument rated pilots decreases from 48.3 percent in 1997 to 44.6 percent in 2020.

D. Total Aviation Activity

Total civil aircraft activity at towered and non-towered airports (based on projections for just under 4,000 public use airports in the Terminal Area Forecast database) is forecast to reach 142.7 million by the year 2020, an average annual growth rate of 0.9 percent over the activity level forecast for 2009 (128.8 million operations). This also represents an average annual growth rate of 0.9 percent over the 115.5 million total aircraft operations recorded in 1997.

Commercial aircraft operations (the sum of air carrier and commuter/air taxi) at all U.S. airports, towered or non-towered, are projected to increase from 28.1 million in 1997 to 35.6 million in 2009, and to 43.6 million in 2020. These forecasts imply an average annual growth rate of 2.0 percent over the immediate forecast period, and 1.9 percent over the extended forecast period.

The number of general aviation operations at towered and non-towered airports is forecast to increase from 87.4 million in 1997 to 94.1 million in 2009 and to 99.1 million in 2020. The average annual growth rate for the immediate forecast period is 0.6 percent, and the annual growth rate for the extended forecast period is 0.5 percent. Much of the growth is the result of increased use of the turbine fleet for business-related flying.

TABLE 2

LONG-RANGE FORECASTS
AVIATION DEMAND AND ACTIVITY

<u>ACTUAL</u>	<u>MARCH 1998 FORECAST</u>			<u>LONG-RANGE FORECAST</u>			
	<u>1997</u>	<u>1998</u>	<u>2000</u>	<u>2005</u>	<u>2010</u>	<u>2015</u>	<u>2020</u>
<u>Domestic Passenger Enplanements</u>							
(In Millions)							
Air Carrier	542.3	561.3	596.6	711.5	851.5	989.6	1,127.7
Regional/Commuter	61.9	66.7	73.9	96.5	122.5	147.9	173.4
<u>Aircraft Fleets</u>							
(In Thousands)							
Air Carrier	5.0	5.1	5.4	6.6	7.6	8.7	9.7
Regional/Commuter	2.1	2.2	2.4	2.8	3.1	3.4	3.7
General Aviation	189.3	191.6	195.6	205.3	214.8	224.4	234.0
Civil Helicopter	6.4	6.5	6.6	6.7	6.8	6.9	7.0
<u>Hours Flown</u>							
(In Millions)							
Air Carrier	12.7	12.9	13.3	16.6	19.8	22.7	25.4
Regional/Commuter	3.7	3.8	4.3	5.5	6.7	7.9	9.1
General Aviation	26.5	26.9	27.8	29.9	31.8	33.7	35.6
<u>Pilots</u>							
(In Thousands)							
Total	616.3	631.7	675.2	761.3	798.4	853.3	872.3
Instrument Rated	297.4	300.1	311.3	337.2	354.5	376.6	388.7
<u>Estimated Civil U.S. Operations</u>							
(In Millions)							
Commercial	28.1	28.7	29.5	32.8	36.4	40.0	43.6
General Aviation	87.4	87.6	89.8	92.3	94.6	96.9	99.1

IV. LONG-RANGE WORKLOAD MEASURE FORECASTS

Forecasts of FAA workload measures by user groups for 1998 and 5-year increments between 2000 and 2020 are provided in Table 2, page 15. A discussion of the forecasts follows in the paragraphs below.

A. Towered Operations

At the end of FY 1997 the number of FAA towers totaled 290, and the number of FAA contract towers totaled 160. During FY 1998, an additional 23 towers are slated for conversion to contract towers. However, the contract tower program, and further tower conversions, have been placed on hold pending resolution of a lawsuit filed by the National Air Traffic Controllers Association. Given the uncertainty about current and future year conversions, the forecasts presented in this document are combined forecasts independent of the distinction between FAA and Contract tower status.

Aircraft operations at combined FAA and contract towered airports are forecast to total 75.4 million in 2009 and 87.4 million in 2020 (1.4 percent annual growth for the 23-year forecast period). Most of the growth is expected to come from commercial activity (the sum of air carrier and commuter/air taxi), which is projected to grow 2.2 percent annually during the immediate forecast period and 2.0 percent annually during the extended forecast period. The slower growth in commercial activity relative to enplanements (3.7 and 3.0 percent during the immediate and extended forecast periods) is due to a combination of continued high load factors, larger aircraft, and longer passenger trip lengths.

Although regional/commuter enplanements increase at much faster rate than the larger air carriers over the 23-year forecast period (4.6 percent compared to 3.2 percent), commuter/air taxi activity increases at an annual rate of only 1.9 percent compared to air carrier growth of 2.2 percent annually. This slower commuter/air taxi activity growth is mainly due to the large numbers of the regional jet aircraft which are expected to enter the regional/commuter fleet over the forecast period. As such, regional/commuter average aircraft size, load factors, and passenger trip lengths all increase at significantly faster rates than do those of the larger air carriers.

General aviation activity, which made up 59.6 percent of combined tower activity in 1997, grows at a considerably slower pace relative to commercial activity over the 23-year forecast period--1.0 and 0.9 percent, respectively, during the immediate and extended forecast periods. In the year 2020, general aviation is expected to account for 54.0 percent of combined tower activity. Military activity is projected to decline from 2.5 million in 1997 to 2.4 million in 1999, and remain constant at that level throughout the remainder of the forecast period.

B. Instrument Operations

Instrument operations at combined FAA and contract towered airports are forecast to total 59.0 million in 2009 and 69.3 million in 2020, average annual growth rates of 1.7 and 1.5 percent, respectively, during the immediate and extended forecast periods. Most of the growth is expected to come from commercial activity, which is projected to grow 2.2 percent annually during the immediate forecast period and 1.9 percent annually during the extended forecast period. Air carrier instrument activity is forecast to grow 2.1 percent annually over the 23-year forecast period while commuter/air taxi activity is forecast to increase at a 1.9 percent average annual rate during the same time period.

General aviation activity is projected to increase at a relatively slower pace over the forecast period, averaging 1.2 percent through the immediate forecast period and 1.0 percent during extended forecast periods. Military activity is expected to decline from 3.3 million in 1997 to 3.2 million in the year 1999, and remain at that level for the remainder of the forecast period.

Commercial activity is expected to increase from 54.0 percent of total instrument activity at combined FAA and contract towers in 1997 to 60.2 percent by the year 2020.

C. ARTCC Aircraft Handled

The number of aircraft handled at FAA en route traffic control centers is forecast to reach 51.6 million in 2009 and 61.8 million in 2020, an average annual growth rate of 1.9 percent for the 1998-2009 time period and 1.7 percent for the 2010-2020 time period. Much of the growth occurs in the number of commercial aircraft handled, which increases by 2.2 and 1.9 percent, respectively, over the same two forecast periods. The number of air carrier aircraft handled increases by an average annual rate of 2.2 percent over the 23-year forecast period--2.3 and 2.0 percent, respectively, over the immediate and extended time periods. The number of commuter/air taxi aircraft handled is forecast to increase by 2.0 percent annually during the immediate forecast period and 1.6 percent over the extended forecast period--1.9 percent over the entire 23-year period.

The number of general aviation aircraft handled at FAA en route centers increases at a slower rate over the two forecast periods, 1.4 percent annually over the immediate 12-year period and 1.1 percent over the extended 11-year period. The number of military aircraft handled is forecast to decline from 3.9 million in 1997 to 3.8 million in 1999, and remain constant over the remainder of the forecast period.

By the end of the 23-year forecast period, commercial activity is expected to account for 76.2 percent of the total center activity compared to 70.8 percent in 1997.

D. Flight Services

The number of services provided by FAA flight service stations is forecast to total 32.8 million in 2009 (an annual decline of 0.4 percent) and 31.9 million in 2020 (an annual decline of 0.3 percent). The projected decline in services provided by FAA flight service stations throughout the 23-year forecast period reflects both the continued consolidation of flight service stations and a greater use of automated and alternative flight services which are not provided directly by the FAA.

Average annual growth rates for each of the three flight service categories for the immediate and extended forecast periods are: flight plans originated: up 0.5 and 0.3 percent; pilot briefs: down 0.9 and 0.7 percent; and number of aircraft contacted: down 1.7 and 0.3 percent.

Automated services provided through the Direct User Access Terminal System are forecast to grow throughout the immediate and extended forecast periods. DUATS services are projected to increase to 19.2 million in 2009 (a 3.0 per-cent annual increase) and to 24.0 million in 2020 (a 2.1 percent annual increase). During the 23-year period, DUATS services are projected to increase at a 2.6 percent annual rate, and combined FSS and DUATS services are forecast to increase 0.7 percent annually during the same period.

TABLE 2

LONG-RANGE FORECASTS

FAA WORKLOAD MEASURES

(In Millions)

<u>ACTUAL</u>	<u>MARCH 1997 FORECAST</u>		<u>LONG-RANGE FORECAST</u>				
	<u>1997</u>	<u>1998</u>	<u>2000</u>	<u>2005</u>	<u>2010</u>	<u>2015</u>	<u>2020</u>
<u>Towered Operations*</u>							
Total	<u>63.4</u>	<u>64.2</u>	<u>65.9</u>	<u>71.1</u>	<u>76.4</u>	<u>81.8</u>	<u>87.1</u>
Itinerant	<u>47.1</u>	<u>47.8</u>	<u>49.1</u>	<u>53.6</u>	<u>58.2</u>	<u>62.9</u>	<u>67.5</u>
Air Carrier	14.2	14.5	14.9	16.9	19.1	21.2	23.4
Commuter/Air Taxi	10.0	10.2	10.6	11.8	13.0	14.3	15.5
General Aviation	21.5	21.8	22.3	23.7	24.9	26.2	27.4
Military	1.3	1.3	1.2	1.2	1.2	1.2	1.2
Local	16.3	16.5	16.8	17.5	18.2	18.7	19.6
General Aviation	15.1	15.2	15.5	16.3	17.0	17.7	18.4
Military	1.2	1.2	1.2	1.2	1.2	1.2	1.2
<u>Instrument Operations*</u>							
Total	<u>48.5</u>	<u>49.2</u>	<u>50.6</u>	<u>55.2</u>	<u>59.9</u>	<u>64.7</u>	<u>69.3</u>
Air carrier	15.3	15.6	16.1	18.1	20.5	22.6	24.8
Commuter/Air Taxi	10.9	11.2	11.6	12.9	14.2	15.6	16.9
General Aviation	19.0	19.2	19.7	20.9	22.0	23.2	24.4
Military	3.3	3.2	3.2	3.2	3.2	3.2	3.2
<u>ARTCC Aircraft Handled</u>							
Total	<u>41.4</u>	<u>42.0</u>	<u>43.2</u>	<u>47.8</u>	<u>52.5</u>	<u>57.2</u>	<u>61.8</u>
Air Carrier	22.5	22.9	23.6	26.7	30.1	33.4	36.7
Commuter/Air Taxi	6.8	6.9	7.2	8.1	8.8	9.6	10.4
General Aviation	8.2	8.3	8.6	9.2	9.8	10.4	10.9
Military	3.9	3.9	3.8	3.8	3.8	3.8	3.8
<u>FSS Services</u>							
Total	<u>34.5</u>	<u>34.5</u>	<u>34.2</u>	<u>33.3</u>	<u>32.8</u>	<u>32.3</u>	<u>31.9</u>
Pilot Briefs	8.7	8.7	8.6	8.1	7.8	7.5	7.2
Flight Plans Filed	6.7	6.8	6.8	7.0	7.1	7.2	7.3
Aircraft Contacted	3.7	3.5	3.4	3.1	3.0	2.9	2.9
DUATs	<u>13.4</u>	<u>14.0</u>	<u>15.0</u>	<u>17.4</u>	<u>19.6</u>	<u>21.6</u>	<u>24.0</u>

* Includes combined activity at FAA and contract towers.